

**LATEST RESULTS FROM 2-DIMENSIONAL MONTE CARLO
SIMULATIONS OF VENUS' RESURFACING BY VOLCANISM R.G.**

Strom, D.D. Dawson, U. Arizona, Tucson AZ 85721, and G.G. Schaber, U.S.
Geological Survey-Emeritus, Flagstaff AZ 86001

Additional two-dimensional Monte Carlo simulations were undertaken during 1996 to update the authors' earlier results addressing (1) the percentage of Venus that has been resurfaced by volcanism following the termination of the most recent global resurfacing event about 300 m.y. ago, and (2) the duration of the tail-off of this global resurfacing event. The new computations for the first time include as simulation parameters the surface area covered by crater halo deposits (usually radar-dark)--in addition to impact crater ejecta and splotches. As in our earlier work, the new simulations were run assuming that specific numbers of the observed volcanically embayed craters were embayed either during the proposed global resurfacing, or subsequent to it (i.e., over the past 300 m.y. or so). The results (in preparation) show that the inclusion of crater halos in the simulations change little the results reported earlier by the authors that considered only craters and splotches. For example, when craters, halos and splotches are considered, and it is assumed that none, 10, and 20 of the 48 observed lava-embayed craters have been embayed during the global resurfacing event--and the remainder subsequent to that event--then only 6.5%, 4.6%, and 3.3%, respectively, of the planet could have been resurfaced by volcanism alone since the proposed global event ended. If splotches are not considered in the simulations, then the maximum percentage of the planet that could be resurfaced under the same assumptions would be 13.5%, 10.7%, and 6.8%, respectively. These are maximum values given that the two-dimensional simulations take in consideration the entire planetary surface, and overestimate the number of destroyed craters. Therefore, these values may in fact slightly overestimate the degree of solely volcanic resurfacing over the past 300 m.y. Given the same 0, 10, and 20 craters (out of the 48 observed embayed craters) assumed to have been embayed "during" the global event, the time to end global resurfacing (by volcanism only) was found to be <10 m.y., 50 m.y., and 100 m.y., respectively, when considering (in the simulations) craters, halos, and splotches. When only craters and halos were considered (i.e., no splotches), the duration of tail-off of global resurfacing (by volcanism) was found to last <10 m.y., 60 m.y., and 160 m.y., respectively.